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02 FC:1202 36.00 DA

Adjustment date: 06/21/2004 EEKUBAYI
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Patent

Docket No. H60-113

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Germaine Brenkert

Germaine Brenkert
Dated: May 20, 2004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Sven-erik Carlson et al.
Application No.	:	10/654,184
Filing Date	:	September 3, 2003
For	:	INCREASING THE PERFORMANCE OF AN OPTICAL PULSOXIMETER
Examiner	:	--
Art Unit	:	3736

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SUPPLEMENTAL AMENDMENT AND
REQUEST FOR REFUND

Sir:

Supplemental to the Preliminary Amendment filed September 3, 2003, please amend the above-identified application, as follows.

IN THE CLAIMS:

Please amend the claims, as follows:

Claim 1 (Previously presented): Configuration for the acquisition and/or monitoring of medical data, in particular the state of the cardiovascular and pulmonary system, blood values or blood composition, characterized by at least one measuring sensor for the acquisition of the medical data such as the state of the cardiovascular system, etc. of a person comprising at least one light source which can emit light at least at two wavelengths, as well as at least one light receiver for determining the light transmitted and/or reflected 'through a tissue portion of a person or an animal further comprising means in order to increase the opt1cal Signalto-Noise and/or Signal-to-Background ratio.

Claim 2 (Original): Configuration according to claim 1 and at least one beam shaping optical element to direct the emitted light into a human or animal tissue and the light receiver.

Claim 3 (Previously presented): Configuration according to claim 2, characterized in that the beam shaping element is a diffractive or refractive beam shaping element.

Claim 4 (Previously presented): Configuration according to claim 1, characterized in that at least two light emitting sources, such as LEDs, are arranged and that two beam shaping elements are arranged to direct the emitted light into the same area

within the human or animal tissue and that the light receiving element is a photo detecting element.

Claim 5 (Previously presented): Configuration for the acquisition and/or monitoring of medical data, in particular the state of the cardiovascular and pulmonary system, blood values or blood composition, characterized by at least one measuring sensor for the acquisition of the medical data such as the state of the cardiovascular system, etc. of a person comprising at least one light source which can emit light at least at two wavelengths, as well as at least one light receiver for determining the light transmitted and/or reflected through a tissue portion of a person or an animal and at least one light tray and/or optical wavelength filter.

Claim 6 (Previously presented): Configuration according to claim 5, characterized in that the optical wavelength filter is an optical double band pass filter.

Claim 7 (Previously presented): Configuration according to claim 5, characterized in that the light receiver has such a limited detection sensitivity that the two frequencies of the light source are within the sensitivity area of the receiver.

Claim 8 (Previously presented): Configuration according to claim 1, characterized in that at least a wavelength filter and/or a light trap, such as geometrical baffles, are adapted to suppress, by geometric and/or optical means, the parasitic contribution of environmental radiation in order to increase and stabilize the signal/background ratio

versus environmental conditions.

Claim 9 (Previously presented): Configuration for the acquisition and/or monitoring of medical data, in particular the state of the cardiovascular and pulmonary system, blood values or blood composition, etc., characterized by at least one measuring sensor for the acquisition of the medical data, such as the state of the cardiovascular and pulmonary system, etc. of a person comprising at least one light source which can emit light at least at two wavelengths, as well as at least one light receiver for determining the light transmitted and/or reflected through a tissue portion of a person or an animal,

at least one beam shaping optical element to direct the emitted light into a human or animal tissue and the light receiver, and

at least one light trap such as geometrical baffles and/or an optical wavelength filter, such as a double band pass filter.

Claim 10 (Previously presented: Configuration according to claim 1, comprising light source amplitude modulating or light source modulating means to shift the frequency of the emitted light.

Claim 11 (Original): Configuration according to claim 10, comprising a light source amplitude modulating means to modulate the frequency of the emitted light. in a frequency range substantially outside of frequency of noise and/or environmental signals.

Claim 12 (Previously presented): Configuration according to claim 10, comprising means for light source amplitude modulation or light source modulating means to shift the frequency of the emitted light in a range where environmental disturbances are substantially neglectable.

Claim 13 (Currently amended): Configuration according to ~~one of the claims 10 to 12~~ claim 10, comprising means for light source amplitude modulating or light source modulating means to shift the frequency of the emitted light in a range of above *120* Hz, preferably above 500 Hz.

Claim 14 (Currently amended): Configuration according to ~~one of the claims 1 to 13~~ claim 1, comprising mechanical fixing means for arranging the configuration at a human or animal tissue as e.g. at an earlobe of an ear, the means guaranteeing that the beam path between the light emitter and the light receiver is always co-linear with the optical axis of the light emitter and the light receiver.

Claim 15 (Original): Configuration according to claim 14, wherein the means for fixing include a rigid frame with two U- or V-like arranged arms, where in the area of the one arm end the photo detector is arranged, and at the area of the other arm end a clamping mechanism within the LED is arranged screwably connected to the clamping mechanism, so that the distance between the light receiver and the light transmitter can be varied in such a way that the beam path between the light emitter and light receiver always is co-linear with the optical axis of the light emitter and light receiver.

Claim 16 (Original): Configuration according to claim 15, wherein the arm of the frame wearing the clamp mechanism with the light emitter is removably attached to the frame, the connection between the frame and the removable arm being a snap-like mechanism to ensure that the removable arm is fixed to the frame in a constant, predetermined manner.

Claim 17 (Previously presented): Pulsoximetric sensor, including a configuration according to claim 1.

Claim 18 (Previously presented): Method for measuring and/or monitoring of medical data, in particular the state of the cardiovascular and pulmonary system, blood values or blood composition, etc., characterized in that within a pulsoximetric sensor from at least one light source, such as an LED, at least at two wavelengths, light is emitted, the light is transmitted and/or reflected through a tissue portion of a person or an animal and is received by at least one light receiver for determining the light transmitted and/or reflected through the tissue portion, the light from the light emitting source, such as the LED or the LEDs, *is* directed by using beam shaping elements, such as e.g. diffractive or refractive beam shaping elements into the human tissue and photo detecting element.

Claim 19 (Previously presented): Method for measuring and/or monitoring or medical data, in particular the state of the cardiovascular and pulmonary system, blood values or blood composition, etc., characterized in that within a pulsoximetric sensor

from at least one light source such as an LED, at least at two wavelengths, light is emitted, the light is transmitted and/or reflected through a tissue portion of a person or an animal and is received by at least one light receiver for determining the light transmitted and/or reflected through the tissue portion, the light from the light emitting source, such as the LED or the LEDs, is directed through a light tray and/or an optical wavelength filter, wavelength filter preferably is an optical double band pass filter adapted to the power spectrum of the band limited light sources such as LEDs.

Claim 20 (Previously presented): Method for measuring and/or monitoring of medical data, in particular the state of the cardiovascular and pulmonary system, blood values or blood composition, etc., characterized in that within a pulsoximetric sensor from at least one light source, such as an LED, at least at two wavelengths, light is emitted, the light is transmitted and/or ref1ected through a tissue portion of a person or an animal and *is* received by at least one light receiver for determining the light transmitted and/or reflected through the tissue portion, the at least one light source is pulsed operated with a phase shifting or modulation of the frequency, so that the frequency of the emitted light is in a range substantially outside of the frequency of noise and/or environmental signals, the pulsed light with the mentioned frequency is received by the, at least one, light receiver after passing through the tissue portion and finally a reversed phase shifting or modulation is executed to calculate the real values of the pulsoximetric measurement.

Claim 21 (Previously presented): Use of the configuration according to claim 1,

for pulsoximetric measurements, which means for the non-invasive monitory of pulsation, oxygen saturation, arterial carbon dioxide partial tension and/or content of blood sugar in arterial human or animal blood.

REMARKS

Claims 1-21 are in this application and presented for consideration.

Applicant has noticed that page 5 to the prior preliminary amendment was inadvertently missing when it was filed with the application on September 3, 2003. Accordingly, this supplemental amendment is being submitted to include the changes that were made to page 5 which contained claims 13-16. Specifically, claims 13 and 14 have been amended to delete the reference to improper multiple dependencies. No new matter has been presented.

A multiple dependency fee of $290 and $36 for an additional two dependent claims has been charged to the undersigned's deposit account. A copy of the March 31, 2004 deposit account statement is enclosed.

Applicant hereby requests a refund under 37 CFR 1.26 in the amount of $326 to Deposit Account No. 14-1431 since there are no multiple dependent claims and there are only 21 claims being presented, which applicant has previously paid.

Favorable action and entry of this supplemental amendment is respectfully requested.

Respectfully submitted,

Peter C. Michalos
Reg. No. 28,634
Attorney for Applicants
Phone: (845) 359-7700

Dated: May 20, 2004

NOTARO & MICHALOS P.C.
100 Dutch Hill Road, Suite 110
Orangeburg, New York 10962-2100

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UNITED STATES PATENT AND TRADEMARK OFFICE

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